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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,323	01/14/2002	Martin A. Cotton	2654-015	2812

30589 7590 03/08/2006

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EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/046,323	Applicant(s) COTTON, MARTIN A.	
	Examiner Jeremy C. Norris	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 19-21 is withdrawn in view of the newly discovered reference(s) to US 5,430,933 and US 2001/0002163 A1. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,430,933 (Marx) in view of US 2001/0002163 A1 (Imasu).

Marx discloses, referring primarily to figures 3-6, a shielded interconnect structure for interconnecting plural devices on a printed circuit board, the shielded interconnect structure comprising; plural first level conductive sites (18), disposed on an upper surface of the printed circuit board, each first level conductive site being adapted

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for electrical connection to one or more of the plural devices; plural second level conductive traces (12); disposed on a buried level of the printed circuit board; plural micro-vias (28) providing electrical connection from selected ones of the first level conductive sites to selected ones of the second level conductive traces; one or more third level conductive traces (12), disposed on a further buried level of the printed circuit board; a conductive shield comprising; a top shield layer (20) disposed on an upper surface of the printed circuit board, a conductive side wall (40), electrically connected to the top shield layer, and a bottom shield layer (70), electrically connected to the conductive side wall, buried within the printed circuit board at a level beneath the further buried level; wherein a trench is formed in the printed circuit board surrounding the first level conductive sites, the second level conductive traces, and the third level conductive traces, the conductive side wall being formed on a wall of the trench. Marx does not specifically state that the conductive sites of the first layer comprise traces. However, it is well known in the art to use traces to connect IC devices to vias as evidenced by Imasu (figure 2 shows IC (10) connected to a via by a trace (4A)). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use conductive traces as the conductive sites in the invention of Marx as is known in the art and evidenced by Imasu. The motivation for doing so would have been to ensure a reliable electrical connection. Additionally, although Marx does not specifically state that there are vias connecting the third level and second level traces. However, it is well known in the art to connect signal traces within buried levels of a circuit board as evidenced by Imasu (figure 2). Therefore, it would have been obvious to one having

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ordinary skill in the art at the time of invention to connect the second and third level traces with vias as is known in the art and evidenced by Imasu. The motivation for doing so would have been to allow for signal communication between the buried layers.

Additionally, the modified invention of Marx teaches, wherein the top shield layer, the conductive side wall, and the bottom shield layer are formed so that the conductive shield is a unitary Faraday cage surrounding the second level conductive traces and the third level conductive traces (Marx, abstract) [claim 20], wherein the conductive shield and the first, second, and third level conductive traces are formed substantially of copper (Marx, col. 5, lines 15-50) [claim 21].

Response to Arguments

Applicant's arguments with respect to claims 19-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,768,109, granted to Gulick et al., discloses a printed circuit board with devices mounted thereon.

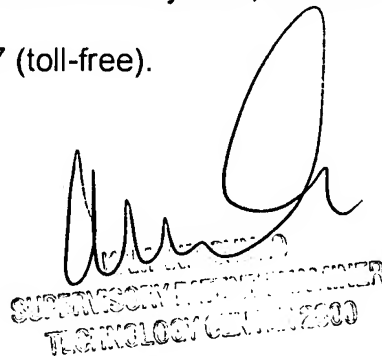
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCSN



A handwritten signature in black ink is positioned above a circular stamp. The stamp contains the text "SUPPLEMENTAL EXAMINATION" and "TECHNOLOGY CENTER" in a circular arrangement.